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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DENNISON, JERRY B

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/076,909	Applicant(s) MEYER ET AL.	
	Examiner J. Bret Dennison	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/19/06</u> . | 6) <input type="checkbox"/> Other: _____ |

RESPONSE TO AMENDMENT

1. Claims 1-26 have been presented for examination.
2. Claims 21-26 are new.
3. The prosecution for this case has been transferred to another Examiner, whose contact information is provided below. All corresponding communications should be directed to the new Examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 6,247,077) in view of Merrell et al. (US 2002/0099797).

1. Before a detailed mapping of the claims, a brief discussion about switches should be made to clarify Examiner's interpretation of the claims in view of the prior art. It is well known in the art that switches contain ports (both input ports and output ports). It is also well known in the art that switches are capable of forwarding packets directly to the ports associated with particular network addresses, meaning that each port must have a

control module that controls the use of the port, in order to control data transfer, ensuring that the data is transmitted to its proper address.

2. Regarding claim 1, Muller disclosed a storage management device containing a switching fabric that provides communication between external nodes and external storage devices (Muller, col. 4, lines 15-22). In order for the nodes and storage devices to communicate through the switching fabric, the switching fabric must contain input ports and output ports that are controlled by at least one control module within the switching fabric in order for data communication to properly be sent through the switching fabric to the storage device, each port being associated with an address of one of the storage devices. Therefore, the switch allows for the client to request data from the storage device, and the storage device respond with the data.

However, Muller did not explicitly state including a data store within the storage management device, the data store holding device information corresponding to one or more storage devices, and the storage management including code configured to operate one of said control modules to receive said device information and in response thereto to initialize, characterize, and profile the corresponding storage devices.

In an analogous art, Merrell disclosed an architecture for access to embedded files using a SAN intermediate device in which the intermediate device maps file system parameters to physical parameters of the storage area network (Merrell, paragraph 22) and clients can issue requests directly to the SAN fabric which translates the logical request into the proper physical address, e.g. Target/LUN (Merrell, paragraph 40) and shares with the clients (Merrell, paragraph 41).

Muller describes a switch fabric between clients and storage devices. Merrell provides a more detailed intermediate switch that includes storage management resources (Merrell, fig. 2 and related description).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the more detailed functionality of an intelligent switch of Merrell into Muller in order to provide a more efficient and simple management system of the storage devices while taking the flexibility of the SAN architecture, while maintaining network flexibility, efficiency, and minimizing security risks (Merrell, paragraph 9).

Claim 11 includes a method with limitations that substantially similar to the limitations of claim 1. Claims 17 includes a storage management device with limitations that substantially similar to the limitations of claim 1, also including automatically detecting and characterizing changes in a topology of said physical storage device and for storing said changes. Merrell also disclosed detecting changes in the storage network due to failure, or newly added devices, or removed devices (Merrell, paragraph 38).

Claims 11 and 17 are therefore rejected under the same rationale.

4. As per claim 3, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 1, including wherein said second code component is further configured to operate one of said storage control modules to obtain path information, said path information identifying data paths between said second data ports

and said storage devices, said path information being stored in said one or more data stores (e.g. col. 45, lines 23-32).

5. As per claim 4, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 3, including wherein said second code component is further configured to operate one of said storage control modules to detect changes in said path information, said changes in said path information being stored in said one or more data stores (e.g. col. 45, lines 32-51).

6. As per claim 5, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 1, including wherein said second code component is further configured to operate one of said storage control modules to detect addition of a storage device (e.g. col. 26, lines 32-56).

7. As per claim 6, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 5, including wherein said second code component is further configured to operate one of said storage control modules to detect removal of a storage device (e.g. col. 26, lines 57-67; col. 27, lines 1-3).

8. As per claim 7, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 1, including wherein said second code component is further configured to operate one of said storage control modules to detect addition of

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one or more data coupling devices, said data coupling devices effective for providing a data communication between some of said first and second data ports and some of said storage devices (e.g. col. 26, lines 32-56).

9. As per claim 8, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 7, including wherein said second code component is further configured to operate one of said storage control modules to detect deletion of one or more of said data coupling devices (e.g. col. 26, lines 57-67; col. 27, lines 1-3).

10. As per claim 9, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 1, including wherein said device information includes one or more of reliability information, availability information (e.g. col. 25, Table VIII), a failover policy (e.g. col. 9, lines 65-67; col. 10, lines 29-31), command support capability (e.g. col. 24, lines 3-11), and performance information (e.g. col. 17, lines 20-23).

11. As per claim 10, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 1, including further including a fourth code component configured to operate one of said control modules to receive user-provided information relating to a configuration of virtual storage devices and to associate said storage devices to said virtual storage devices based on said device information, wherein each device can be associated with one or more of said virtual devices, wherein each virtual device can be associated with one or more of said devices (e.g. col. 45, lines 11-21).

12. As per claim 12, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 11, including wherein said device information includes one or more of reliability information, availability information (e.g. col. 25, Table VIII), a failover policy (e.g. col. 9, lines 65-67; col. 10, lines 29-31), command support capability (e.g. col. 24, lines 3-11), and performance information (e.g. col. 17, lines 20-23).

13. As per claim 13, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 11, including further including detecting changes in said first communications paths and storing information indicative of said changes in said first communications paths in said one or more data stores (e.g. col. 45, lines 32-51).

14. As per claim 14, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 11, including further including detecting addition of a new physical storage device to said physical storage devices (e.g. col. 26, lines 32-56) and removal of one of the said physical storage devices and storing said addition in said one or more data stores (e.g. col. 26, lines 57-67; col. 27, lines 1-3).

15. As per claim 15, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 11, including further including detecting addition of a first data coupling device for coupling said storage management device to one or more of said physical storage devices (e.g. col. 26, lines 32-56) and removal of a second data

coupling device and storing said removal in said one or more data stores (e.g. col. 26, lines 57-67; col. 27, lines 1-3).

16. As per claim 16, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 11, including further including receiving user-provided information relating to a configuration of virtual storage devices; and associating said physical storage devices to said virtual storage devices based on said device information and said first communication paths, wherein each physical device can be associated with one or more of said virtual devices, wherein each virtual device can be associated with one or more of said physical devices (e.g. col. 45, lines 11-21).

17. As per claim 18, Muller discloses the device of claim 17 further including means for receiving user-provided information relating to a configuration of virtual storage devices; and means for associating said physical storage devices to said virtual storage devices based on said device information and said path information, wherein each physical device can be associated with one or more of said virtual devices, wherein each virtual device can be associated with one or more of said physical devices (e.g. col. 45, lines 11-21).

18. As per claim 19, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 17, including wherein said changes in a topology of said physical storage devices includes addition of one or more new physical storage devices

(e.g. col. 26, lines 32-56) and removal of one or more of said physical storage devices (e.g. col. 26, lines 57-67; col. 27, lines 1-3).

19. As per claim 20, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 17, including wherein said device information includes one or more of reliability information, availability information (e.g. col. 25, Table VIII), a failover policy (e.g. col. 9, lines 65-67; col. 10, lines 29-31), command support capability (e.g. col. 24, lines 3-11), and performance information (e.g. col. 17, lines 20-23).

Claims 24 and 25 include limitations that are substantially similar to limitations in the above claims, and are rejected under the same rationale.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller and Meller as applied to claims 1-20, 24 and 25 above, and further in view of Gordon et al. (U.S. 5,920,700).

3. Regarding claim 21, Muller and Merrell disclosed the limitations, substantially as claimed as described in claim 17. Merrell also disclosed detecting changes in the storage network due to failure, or newly added devices, or removed devices (Merrell, paragraph 38).

Muller and Merrell did not explicitly state including logic to cause the storage management device to determine a baseline inventory of a topology of the storage

network at different points in time and logic to generate a report indicating differences in the baseline inventory of the topology between two or more of said points in time.

In an analogous art, Gordon disclosed an intelligent asset management system that includes a schedule manager for evaluation of predetermined events including storage disk topology and a reporting and polling manager which tracks actual activity on the system (Gordon, col. 3, lines 53-67).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the storage management of Gordon into the management of Merrell in order to interactively distribute and manage assets at each of multiple nodes so as to optimize availability of assets to the end user (Gordon, col. 3, lines 40-45).

Claim 22 includes a storage management device with limitations that are substantially similar to claim 21, and is therefore rejected under the same rationale.

4. Regarding claim 23, Muller, Merrell, and Gordon disclosed the limitations, substantially as claimed as described in claim 22, including wherein said reliability information comprises information indicating whether a storage device is a RAID device or a non-RAID device (Merrell, col. 2, lines 40-45).

Response to Amendment

Applicant's arguments and amendments filed on 5/19/2006 have been carefully considered but they are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the following new grounds of rejection as explained here below,

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necessitated by Applicant's substantial amendment (i.e., *by incorporating new limitations into the independent claims, which will require further search and consideration*) to the claims which significantly affected the scope thereof.

It is the Examiner's position that Applicant has not yet submitted claims drawn to limitations, which define the operation and apparatus of Applicant's disclosed invention in manner, which distinguishes over the prior art.

Failure for Applicant to significantly narrow definition/scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad interpretation be given to the claims. The Examiner has interpreted the claims with scope parallel to the Applicant in the response and reiterates the need for the Applicant to more clearly and distinctly define the claimed invention.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Bret Dennison whose telephone number is (571) 272-3910. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.


Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



J. B. D.
Patent Examiner
Art Unit 2143



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